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Quotations from Majority Opinion of New York State Court of Appeals upholding Constitutionality of New York State Unemployment Insurance Act.

There have always been from earliest times the poor and the unfortunate whom the state has had to support by means of money raised by taxation.

The legality of the expenditure of public moneys for vast numbers of those who were without means of support or help has never been questioned.

Unemployment, from whatever cause, has increased enormously in every part of the country, if not throughout the world.

When such a matter becomes general and affects the whole body politic, a situation has arisen which requires the exercise of the reserve power of the State, if there be a practical solution.

Instead of solely taxing all the people directly it has passed a law whereby employers are taxed for the help of the unemployed, the sums thus paid being cast upon the public generally through the natural increase in the prices of commodities. Whether relief be under this new law of the Legislature or under the dole system the public at large pays the bill.

I can see, therefore, nothing unreasonable or unconstitutional in the Legislative act which seeks to meet the evils and dangers of unemployment in the future by raising a fund through taxation of employers generally.

People have to live and when they cannot support themselves some one has to look after them.

Employers generally are not so unrelated to the unemployment problem as to make a moderate tax upon their payrolls unreasonable or arbitrary.

That the purpose of this law is to help those who have worked when they could get work—the working class at present out of work—is apparent from the limitation to the benefits.

What shall we say about this act? At least it is an attempt to solve a great and pressing problem in government.

Unless there is something radically wrong, striking at the very fundamentals of constitutional government, courts should not interfere with these attempts in the exercise of the reserve power of the state to meet dangers which threatens the entire common weal and affect every home. No large body of men and women can be without work and the body politic be healthy.

Money must be obtained and it does not seem at all arbitrary to confine the tax to a business and employment out of which the difficulty principally arises.

We can find nothing in the act itself which is so arbitrary or unreasonable as to show that it deprives any employer of his property without due process of law or denies to him the equal protection of the laws.

Editor's Note: **In 1908 Brandeis won a favorable decision, on Oregon's ten hour law for women, by crushing legalistic arguments against social legislation under a mass of sociological and economic data quoted from the studies of experts from all parts of the world. The Supreme Court took "judicial notice" of the experts' opinions, and decided in favor of the legislation as "reasonable."**

In their recent case New York State appears, from the above quotations and from the extract from their brief published in this issue of the Personnel Journal, to have successfully adopted the "Brandeis Technique."

Extracts from the Economic Brief which Aided N. Y. State in Winning its Case, on the Constitutionality of the N. Y. State Job Insurance Act.

Industrial Instability *and* Unemployment Insurance

Condensed from selected parts of Brief
prepared under direction of
MEREDITH B. GIVENS
Director of Placement and Research and Statistics
N. Y. State Department of Labor

THE demand for and the supply of labor never coincide exactly. A pool of labor power lies idle at all times, prosperous or otherwise, although its size and composition are continually changing. Our working population drifts into and out of this pool in response to the multifarious and fluctuating demands of business. An analysis of the nature of unemployment is found in the study of the *Economics of Overhead Costs* by Professor J. M. Clark of Columbia University. He says:

"One fact needs to be faced which is too often slighted, both by business men and economic theorists, namely, the fact that mobilization (of industry's labor force) itself implies and requires some unemployment. It calls for an 'industrial reserve army', both of capital and of labor, though not to the extent nor for the reasons which the Marxian theory supposes. To the extent that this is really inevitable and essential to industry, it is not a waste, though the question will remain how to reduce the loss of power to the smallest possible proportions . . . and who should bear the burden of the irreducible remainder" (pp. 366–7).

THE JOBLESS

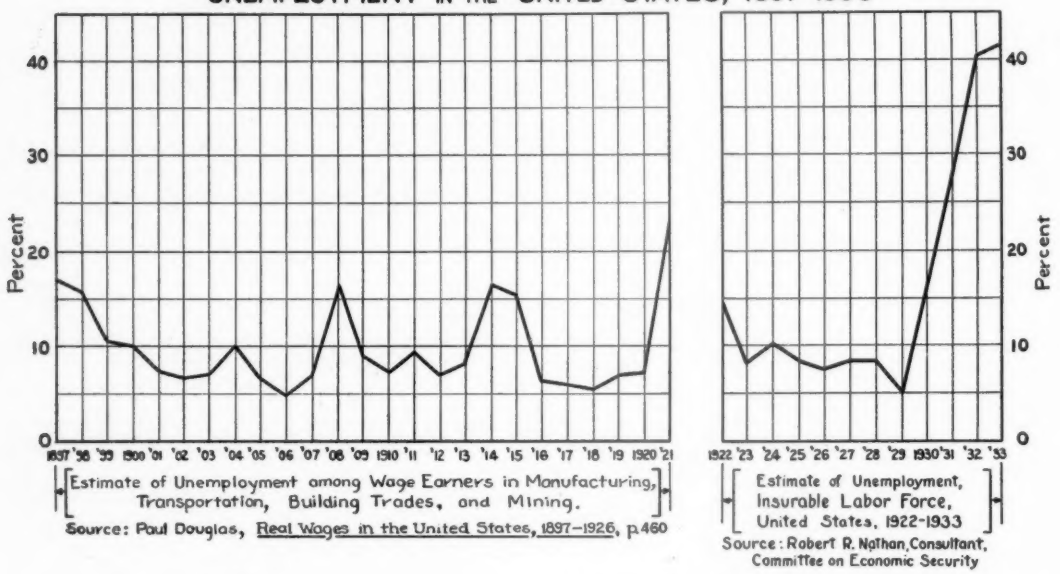
The volume of unemployment in the United States has not been measured directly except at certain specific dates covered by census enumerations. Studies have been made by competent statisticians, however,

whose results indicate broadly the approximate trends in unemployment. The estimates err on the conservative side; that is, they indicate that *at least* the estimated number were unemployed, on the average, during each year. Actual unemployment exceeds the estimates, for the jobless in the industries for which data are scanty or missing are estimated at a minimum. Also, the peak unemployment within any given year is obviously in excess of the average: Further, there is continually a turnover of both the employed and the unemployed; that is, the identity of the unemployed continually shifts and over a period many more are unemployed than the statistical averages indicate. Finally, the part-time workers or under-employed are not represented at all in these estimates.

With these qualifications, unemployment estimates, charts and tables can be interpreted properly as measures of minimum unemployment. Chart 2, based on estimates by Professor Paul H. Douglas of the Uni-

CHART 2

UNEMPLOYMENT IN THE UNITED STATES, 1897-1933


Percent
40
30
20
10
0
1897 '98 '99 1900 '01 '02 '03 '04 '05 '06 '07 '08 '09 1910 '11 '12 '13 '14 '15 '16 '17 '18 '19 1920 '21
Estimate of Unemployment among Wage Earners in Manufacturing, Transportation, Building Trades, and Mining.
1922 '23 '24 '25 '26 '27 '28 '29 1930 '31 '32 '33
Estimate of Unemployment, Insurable Labor Force, United States, 1922-1933

Source: Paul Douglas, Real Wages in the United States, 1897–1926, p. 460

Source: Robert R. Nathan, Consultant, Committee on Economic Security

TABLE 1

ESTIMATED UNEMPLOYMENT, INSURABLE LABOR FORCE UNITED STATES, 1922–1933

Year	Insurable Labor Force Number	Number Unemployed	Percentage Unemployed
1922	18,789,145	2,733,856	14.55
1923	19,225,240	1,579,246	8.21
1924	19,661,335	1,975,798	10.05
1925	20,097,430	1,680,058	8.37
1926	20,533,525	1,571,336	7.65
1927	20,969,620	1,694,333	8.08
1928	21,405,715	1,776,641	8.30
1929	21,841,810	1,181,748	5.41
1930	22,277,905	3,534,445	15.87
1931	22,714,000	6,328,421	27.86
1932	23,150,096	9,366,532	40.46
1933	23,586,190	9,803,582	41.56

Source: *Report*, Committee on Economic Security.

versity of Chicago, and by the Committee on Economic Security, shows percentages of unemployment in the United States since 1897.

The estimated percentage of unemployment among the insurable labor force in the United States is shown in Table 1.

TIME IS LOST BETWEEN JOBS

At all times most of the jobless are among the short-term unemployed.

The shifting identity of the unemployed has been pointed out and the uneven duration of their enforced idleness has been shown above. The lag between layoff and reemployment has been explored in several important studies. In a survey for The Brookings Institution, conducted among a representative group of workers laid off in various industries, Dr. Lubin (now United States Commissioner of Labor Statistics) reports, among other findings, that

"(1) The dispossessed workers did not easily find new employment. Forty-five per cent of those interviewed had not found employment when seen (from one to twelve months after separation from employment).

"(2) Even those workers who secured new employment had difficulty in finding jobs. Only 11.5 per cent were idle for less than one month and more than one-half had been idle for more than three months before being re-absorbed by industry.

"(3) Workers discharged from industry (moved) in large numbers to plants which produce products different from those made in the industries with which they were formerly associated. Less than 10 per cent of those surveyed were reemployed at their old jobs. Two-thirds went into entirely different industries."

Other studies support these findings. For example, displaced rubber workers in New Haven, of whom 30 per cent were unemployed ten months after layoff, found reemployment with difficulty. Further, "the total losses . . . were not fully measured by the amount of unemployment. The vast majority . . . suffered sharp cuts in earnings as a result of the change in jobs. . . . The figures show that the total loss in income of the workers in a period of about one year after the shutdown amounted to about 50 per cent of their income during the preceding year. . . ." Similar conclusions from other investigations could be cited.

INDUSTRIES ARE INTERDEPENDENT

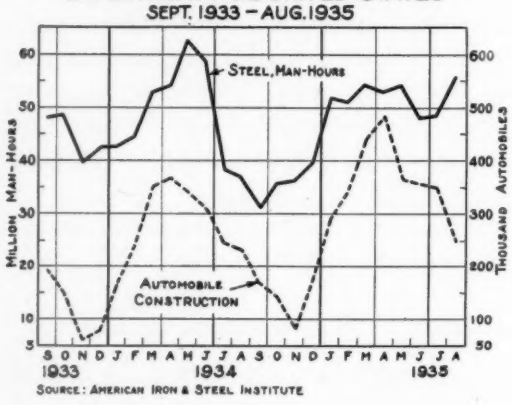
Unemployment is a consequence of instability in industry and trade, and as such, is a problem of the business community as a whole. Its principal causes may be distinguished, but they cannot be dissociated from one another, nor can they be weighted with precision, either at a given time or over a period. They are numerous and complex, shifting and largely unpredictable. Individual firms are relatively powerless to cope with them, and only to a minor and uncertain extent can they be dealt with by individual industries. They are

associated with the economic interdependence of all industries, geographic areas and social groups.

The individual business concern operates in the midst of a maze of forces beyond its immediate influence.

The controlling influence of the level of activity in one industry over that of another is illustrated by the close correlation between man hours worked in the steel industry and the production of automobiles, as shown in Chart below.

CHART 17
AUTOMOBILE PRODUCTION AND STEEL MILL EMPLOYMENT IN THE UNITED STATES
SEPT. 1933 – AUG. 1935



SOURCE: AMERICAN IRON & STEEL INSTITUTE

This illustration could be repeated *ad infinitum* if a comprehensive effort were made to give concrete evidence of the interdependence of industry and the instabilities which arise from the high degree of specialization in industry today. If whole industries are dependent on the activity of others, then how much more is the individual firm caught in a maelstrom of forces to which it must adapt but which, alone, it cannot control.

REGULARIZATION LIMITED

It is commonly assumed that a large number of workers are protected by plans for the regularization of employment. A few individual firms have accomplished something in the face of very difficult problems, yet the *swings of seasonal unemployment have increased* in their impact on workers during the last fifteen years.

For nineteen important industries employing over two million persons, a recent study has shown that the number of workers attached to industries showing increased amplitude of seasonal swings is three times the number of those engaged in industries showing decreased swings. This would indicate that, despite the gains made by a few employers in regularizing employment in their own plants, they have not been able to exercise any substantial influence on seasonal unemployment as a whole.

Effort by management to regularize employment is conditioned by the nature of the business and other circumstances largely beyond its control. The General Electric Company, for example, can forecast the annual production of electric light bulbs with a high degree of accuracy, and regular production can be scheduled accordingly. In the manufacture of turbines, however, the company must wait on specifications and make up each turbine on order; hence, employment fluctuates with the number and volume of orders.

A degree of stabilization in one

industry may even accentuate irregularity in another. The manufacture of radios affords an example. Until recently orders for house radios were concentrated in the autumn, which caused highly irregular employment in the industry. With the adaptation of the radio to the automobile, employment in the industry became more regular because orders for automobile radios were concentrated in the first few months of the year. Recently, however, the automobile industry has been trying with some success to spread its own employment more evenly over the year. Already radio manufacturers are realizing that with more stable production of cars, a new factor of instability obstructs their own attempts to stabilize.

During an investigation of regularization plans in New York in 1930, only 292 firms reported any effort to stabilize employment. Of this number, 117 had not made any effort in this direction other than the use of a part-time or stagger system of employment in place of layoffs in the dull season. Less than 100,000 workers were employed by firms which had adopted methods other than part-time work as a means of regularizing employment. Such efforts included the stimulation of consumer and dealer demand in dull seasons, the diversification or standardization of the product, the budgeting of sales and production, manufacture for stock and the dovetailing of jobs. About 2 per cent of the wage earners in the State were employed in establishments that were making a definite effort to regularize. Even these firms did not succeed in eliminating seasonal unemployment.

THOUSANDS SEASONALLY IDLE

While much may yet be done to lessen seasonal unemployment, progress in this direction has not been rapid. With the incentive of reduced overhead charges as a spur to continued efforts, it may be expected that plant managers and owners will be able to reduce the burden of seasonal unemployment here and there in the future. That all such unemployment, or even a large part of it, will not be eliminated by regularization plans is a foregone conclusion. Plans in any one industry or plant are subject to the vicissitudes of change in the general economic sytem and, not infrequently, a plan successful in eliminating seasonal variation during a short period may be interfered with and even rendered ineffective by changes in other industries, or in the general economic scene.

In the United States more than a million men and women, on the average, are unemployed every month owing to seasonal slackness. Workers in the State of New York suffer particularly because of the importance of the construction and garment industries. The average number of persons seasonally out of work in New York State, excluding agriculture, domestic service and public service, is not less than 150,000.

Unemployment resulting from the inevitable swings of business through wide arcs of boom and depression is

even less susceptible to prevision and provision than that attributable to seasonal fluctuations.

Underlying the seasonal and cyclical fluctuations there are other factors, such as population, technological and market changes, geographical shifts in industries, and the alternating rise and disappearance of firms and sometimes whole industries, that create hazards never absent but always unpredictable in their appearance and incidence.

MACHINES DISPLACE LABOR

Technological changes cause unemployment because, certainly for short periods, industry finds it more profitable to pay for machines than for human labor. This is not to imply that in the *long run* the number of job-seekers will exceed the number of jobs; but leading considerations suggest that technological unemployment, in the above sense, cannot be shrugged off as merely another economic fallacy.

A dramatic illustration of technological displacement is found in the iron and steel industry. Since the early days in Wales steel sheets have been produced by a highly athletic process whereby the workers passed the sheet bar to and fro between power-driven rolls until the desired gauge or thickness was obtained. In 1927 a remarkable process of continuous stripsheet rolling was introduced by which the finished sheets are produced without reheating, direct from the ingot. In the United States in 1929 there were roughly 1400 of the old mills in the sheet and tin plate industry, with an aggregate annual capacity of 7,500,000 gross tons of sheet. One of the new continuous mills has a yearly capacity of approximately 400,000 gross tons of uniform gauge, equivalent to the capacity of forty or fifty old style sheet or tin mills. The "hot mills" are now almost obsolete, as are the puddling furnace, the bloomery and the forge. The work which formerly required more than 10,000 workers, directly and indirectly, can now be done by a mere handful.

Whatever may happen "in the long run," this type of displacement leaves a serious problem for the dislocated workers and makes a large contribution to total unemployment. The results of a careful statistical study show that, owing to improvement in technological and managerial efficiency, over three million wage earners were displaced in the United States, between 1920 and 1931, an annual average of about a quarter of a million wage earners. The reabsorption of these workers "took one and one-half years or thereabout, to work itself out . . . " and the average time lost per displaced worker was approximately three quarters of a year.

PLANTS MIGRATE

Another cause of employment dislocation and readjustment is the migration of plants and even entire industries. This may be induced by

depletion of local sources of raw materials, by shifts of population, by changing demand, or by the desire for new layout and equipment in an environment free of the old traditions. The immediate cause of relocation is usually the desire or the necessity for lower unit costs. Often the tragic result is a stranded community, or stranded groups within a community.

The case of the International Paper Company illustrates the way in which technical considerations may require an industry to move its plants, with serious effect on local employment. This company had plants for manufacturing paper from timber at Fort Ticonderoga, Katyville and Pierceville, New York. In 1931 the timber in this region became exhausted. New and modern plants were erected in the South, and although the company made some effort to aid in the reëmployment of their workers, it did not assume complete responsibility for the unemployment it had created. Other instances of removal or abandonment of plants are cited.

Similar in effect is the importation of workers. The Bethlehem Steel Corporation at Lackawanna, New York, imported workers and later abandoned them to public relief in a community totally unprepared for the burden. In all such instances, displacement may or may not be matched by immediate or ultimate reabsorption or expansion in other lines of employment.

BUSINESSES FAIL

The instability of business is mirrored in the statistics of business failures. Such failures often mean the disappearance of firms and the direct displacement of workers. Of course direct displacement does not follow necessarily when insolvent enterprises are at once relaunched under new auspices, but the stringencies that are climaxed in business failures none the less press continuously upon business and employment, either directly or indirectly. Furthermore, business failures themselves present an incomplete picture, for most concerns in financial difficulty anticipate bankruptcy by voluntarily going out of business and thus avoid the stigma of forced liquidation. "For every business enterprise which fails," says Roy A. Foulke of Dun and Bradstreet, "the managements of a far greater number close up shop, lock the windows, turn out the lights, pay the rent, liquidate their bills, and then voluntarily move on to try their fortune at some other location, or to become employees until they can husband sufficient resources to become entrepreneurs once again."

In their effect on employment these continual shifts in enterprise, the disappearance of old firms and the rise of new, are closely related to the other fundamental changes and shifts in the business structure that have been described above.

These correlative processes of in-

dustrial change, when simultaneous, may tend to cancel one another in the long run when all industries are lumped together. But this cannot be true of individual industries or persons.

PRIVATE PLANS TOO FRAGILE

Company interest in the protection of employees against unemployment is a post-War development. But in 1931 the number of workers covered by private plans of unemployment compensation constituted less than one-half of one per cent of these gainfully employed in the country. Two-thirds of this small number were covered by trade union unemployment insurance schemes, or by joint compensation plans provided by employers and trade unions. The remaining one-third were covered by plans established and operated by plant management.

By 1933 thirty-eight companies had initiated voluntary unemployment compensation plans—nineteen in number—to care for unemployed members of their work force. An analysis of experience with these plans gives some indication of probable shortcomings on the part of the employer reserve type of unemployment insurance. It is important to note that in every respect these nineteen plans operated under advantages that the average firm does not enjoy. Because the plans were voluntary, each originated at a time when the company was well able to finance payments. Many companies enjoyed a monopoly or controlled a large percentage of the competitive business for some time. Before plans were put into effect, several concerns had successfully stabilized employment and reduced benefit costs. Other companies achieved improved stability during the operation of the plans. The usual limitation of benefits to employees temporarily laid off further reduced payments under the voluntary plans.

Despite the elements favoring the company plans, 7 of the 19 were discontinued and in 7 others it was found necessary to reduce benefits or limit their duration. Their experience may be briefly summarized as follows:

The Rockland Finishing Company plan functioned from 1920 to 1923, when the money set aside for its operation was exhausted.

The American Cast Iron Pipe Company initiated a plan in 1924. Technological changes made it desirable to abandon the plan in 1926.

The United Diamond Works inaugurated a plan in 1921 and maintained payments through one entire year of the 1920–22 depression but the decline in the diamond business that began in 1928 forced the plant to close in 1931.

The Brown and Bailey Company had a plan from 1927 through 1931. Although reserves were built up they did not prove sufficient to meet the continued unemployment of the depression.

The Dennison Manufacturing Com-

pany operated a plan from 1916 to October 1932, when it was suspended for lack of funds.

The Leeds and Northrup Company started a plan in 1923. Benefits were reduced in 1931 but continued unemployment consumed the reserves that had been set aside and the plan terminated in June 1932.

The Consolidated Water Power and Paper Company had a plan for the year 1929; it was given up for non-financial reasons.

The Crocker-McElwain Company, which for ten years guaranteed fifty-two weeks' full pay, in 1931 reduced its guarantee to 80 per cent, and in 1932 to 50 per cent of wages for forty-four weeks.

The Columbia Conserve Company although maintaining their fifty-two week guarantee, voted in 1932 to pass the payroll in any week in which funds failed to meet the payroll and other obligations.

Proctor and Gamble, which guaranteed forty-eight weeks' employment, reduced working hours in 1932 to 75 per cent of the normal fifty hours. Later that year the five-day week was adopted, bringing weekly hours to forty-five, and in January 1933 adoption of an eight-hour day established a forty-hour week.

The General Electric Company's contributory plan originally proposed to pay 50 per cent of wages up to a weekly maximum of $20; instead a $15 limit was adopted.

Three firms in Fond du Lac, Wisconsin, operating a single plan, have in effect cut benefits by reducing hours of work.

The John A. Manning Company originally paid flat benefits and altered their plan to provide at least 3½ days' pay each week.

Rochester Plan. In 1931, 14 companies united in adopting a plan to build up case reserves for benefits to their employees during periods of unemployment. Some time later five additional companies subscribed to the plan. Eleven companies failed to set up reserves or were unable to continue payments and paid no benefits.

"Neither union, joint nor company plans, did more up to 1932 than prove the necessity for state or federal legislation on the subject," according to a recent and definitive review of working conditions and labor legislation in the United States. It is clearly indicated that private unemployment compensation plans are too fragile to survive.

NEED FOR COMPREHENSIVE PLAN

If individual effort is impotent to deal with the growing problem of unemployment, and if existing community methods are inadequate, as has been shown, then some new device for coping with the problem is imperative.

The *causes* of unemployment are multiple and variable in their impact from time to time, from firm to firm and from industry to industry. They are so inherent in our economic structure that they cannot be attributed,

even at a given time, to a specific employer or industry. Their *effects* are so persistent that they are felt in good times as well as bad; they bring difficulties in depressions, even to the so-called stable trades. Thus unemployment is so unpredictable and so unevenly distributed that it cannot be provided for from the relatively small resources of a single employer or industry.

The multiple and continually shifting manifestations of unemployment must be dealt with as a whole, and call for a concerted approach by industry. Through a pooled fund available to meet the difficulties brought about by unemployment wherever it arises the employees of individual industries and firms can most effectively be assured of the protection needed, and the benefits of sustained consumption extended to the community at large.

NO ADDITIONAL COST

Thus, the cost of maintaining our idle labor reserves would be widely distributed. This criterion can be satisfied by a payroll tax which falls usually on wage earners or consumers or both.

It should not be assumed that the cost of providing unemployment insurance is in any sense an additional cost imposed on industry or on the purchasers of industry's product, beyond that to which they are subject by the mere existence of unemployment, apart from any scheme of insurance. Under all conceivable conditions, unemployment is a liability and a cost. By means of a reasonable tax on payrolls for unemployment insurance, as provided under the present law, direct and indirect costs should be substantially reduced.

Gunfire Makes 120 Decibels of Noise, an Auto Horn Scares You with 90 Db., You Have 40 Db. at Home, and Your Heart Beats to a Tune of 10 Db.

Sound Control and Noise Elimination

By Walter J. Hodge
Acoustical Engineer
Johns-Manville Corp., N. Y.

We live in a world of sound; yet, in spite of its vital importance to every day existence, sound rarely enters into our conscious thinking. We depend on it for communication by speech, for entertainment, danger signals;—as an aid to navigation through air and on sea. In the average person's existence there is never a moment, day or night, when his ears are not recording sounds of one kind or another. But because so little is commonly known of the subject, the air is filled with sound that is not only a constant inconvenience, but which works positive harm to all who must suffer its attacks.

It is here the intention to sketch briefly some of the basic principles of sound control, and to show how a knowledge of these principles are applied to problems in everyday life.

Vibrations Cause Sound Waves

Wherever and whenever a vibration occurs, be it in the string of a piano or violin, a column of air in an organ pipe, or the diaphragm in a telephone ear piece, the stage is set for the creation of sound waves. Any vibrating object, in its motion, pushes to and fro on the air particles surrounding it on all sides; these air particles in turn disturb their more remote neighbors. By this interaction of the air particles, the original vibration spreads out in the form of a bubble of ever increasing size, and if the creative vibration persists, this bubble is followed by similar bubbles, regularly spaced and moving hard on the

heels of the first. As the bubbles grow very large their walls will become so very thin they will finally melt into nothingness. So it is with the air vibrations which ultimately are spread over such vast areas as they move out and away from their source that the reduced vibrations of the air particles become lost in the random motions of the air in general.

If by chance a human ear should be in the path of any of these swiftly expanding bubbles of air pressure, its infinitely delicate mechanism would telegraph to the brain the time of arrival and the intensity of each arriving pressure as it came, and the owner of the ear would derive from this an impression of the pitch and loudness of the sound. These pressure "bubbles" all expand outward at the same rate of approximately 1,100 feet per second,—called by us the "speed of sound." If they arrive at the ear with great frequency, we say the resultant sound has a "high pitch." The measured distance between "bubbles" is known as the "wave length" of the sound considered.

However, the kinds of sound just discussed occur very rarely as natural phenomena. The sound waves set up by a whistle, an organ pipe or the voice of a friend, are never a simple set of vibrations such as we have just considered. Rather are they a composite of many simultaneously-generated vibrations. What we know as the "pitch" of such a sound is determined by the pitch of the lowest frequency vibration present. The other vibrations which accompany this lowest frequency or "fundamental" vibration are known as "overtones," or "harmonics."

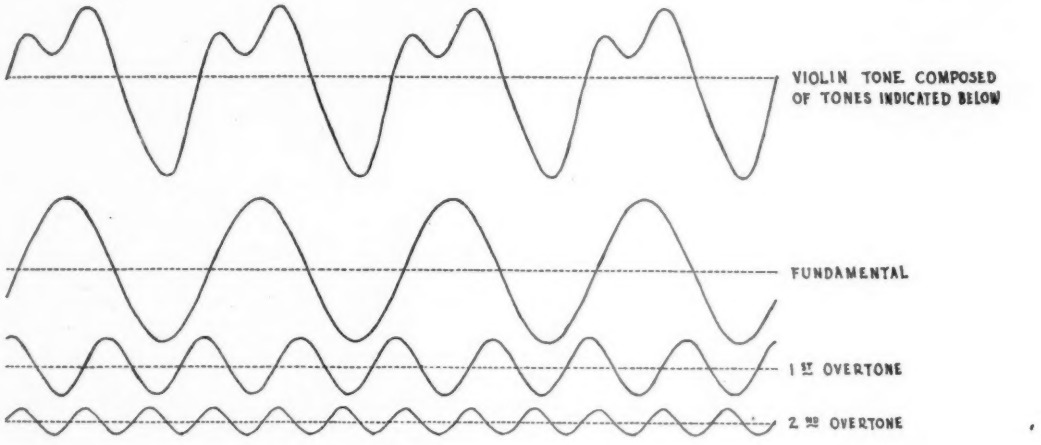


FIG. 1

It is because the human ear is without equal in detecting and analyzing these overtones in sounds that we are so keenly aware of the differences in human voices; that we differentiate between various musical

instruments even to the extent of preferring a particular violin to another seemingly identical. Such a composite wave as we have here discussed is shown, with the components going to make it up, in Figure 1. If the vibrations drawn here in graph form were set up in the air, the ear would pronounce the resultant sound to be that of a violin. Conversely, apparatus is available to draw such a record as this from sound existing in the air, and if a violin tone were to be so recorded, the complex waves of Figure 1 would result.

It is thus evident that any musical tone, that is, any sound of definite pitch, is the resultant of one or more simple and uniform vibrations, and that the amplitudes (or intensities) and frequencies of these vibrations determine the sound intensity and quality of the resulting complex vibration. While the ear is without an equal in judging the quality of sound, it is not an accurate judge of frequency or intensity per se. Intensity largely determines sound loudness, and to provide an accurate measurement of this characteristic, an electrical apparatus known as a sound or Acoustimeter is usually employed. Indeed, a sound meter is to acoustics what a thermometer is to heat.

Up to this point we have been discussing sound entirely from the viewpoint of the scientist. But in this modern world, sound forces its way into everyone's consciousness. Nearly every out-standing invention of modern times has left a wake of new noises,—the radio, automobile, steam engine, trolley-car, electric refrigerator, typewriter, sewing machine, printing press,—the list is endless. About the only really noiseless invention of modern times is the electric light. There are also inventions specifically intended to make noise—automobile horns, sirens, door-bells —down to alarm clocks.

NOISE IS UNDESIRED SOUND

Noise is most aptly defined as "undesired sound." At one time all sounds not pleasing were termed noises, but this definition is open to exception. Even the cadence of a Wayne King waltz can be noise if it emanates from a neighbor's radio at three o'clock in the morning. Likewise, the sound of rushing water would not be called noise by a thirsty individual to whom it promised a drink.

Thus noise in its countless aspects is continually raising problems. For example: How can employers capitalize on the benefits of modern office machinery without compelling their employees to work under conditions of distressing noise? Again, how can residence interiors be protected from exterior street noises and from the various miscellaneous sounds that domestic equipment generates?

RIVETING MACHINE, 90 DECIBELS

In an effort to compare and classify noises, a special measuring technique has been developed, built around that unit with the strange name—the Decibel. A one decibel change in

FIG. 4. A TEST FOR SOUND ABSORPTION IN THE ACOUSTICAL ENGINEERING LABORATORY
Courtesy Johns Manville Corp.

sound intensity corresponds roughly to the slightest change in loudness that can be distinguished by the human ear.

If we wish to describe the hotness or coldness of our surroundings, we say "The temperature is 80 degrees," or "The thermometer reads 20 degrees out-of-doors," and other persons know from their own experience what we mean. When the decibel scale becomes more widely known and understood, it will be as informative as the temperature scale is when we say "The noise level is 80 decibels," or "20 decibels," as the case may be.

Briefly reviewing the history of the decibel, we find it is one tenth part of a Bel, this latter unit being named by the telephone engineers after Alexander Graham Bell, and signifying in telephony a certain increase or diminishment in sound or electrical intensity. Essentially, it represents a ratio between two quantities; in sound it is used to indicate the ratio of energy existing between any given sound and the faintest sound that the ear can hear. It thus stands to sound in somewhat the same relationship that degrees Fahrenheit stand to heat, where, for example, we would denote the amount of physical discomfort to be experienced in a certain room by the number of "degrees Fahrenheit" existing between the temperature of that room and another reference room in which one could remain with absolute comfort.

Suppose 70 degrees represented this comfortable temperature, then another room of 100 degrees would certainly be classed as uncomfortable, and 30 degrees would signify the extent to which it was so. Assume the temperature is now reduced from 100 degrees to 90 degrees. It is only a 10 degree reduction, but it goes without saying that this represents a tremendous increase in comfort. Just so does it work out in the case of sound. A 50 db. level is that of a quiet office; 60 db. that of a noisy office. If the 60 db. level be reduced to 50 db. the actual reduction is only 10 db., but the increase in physical comfort and well-being is enormous.

As you walk down a city street and pass by a riveting machine at work, you are conscious of a terrific din. If the machine suddenly stops, the surroundings seem by contrast almost quiet. Yet here the actual sound level has been reduced only about 10 db., from approximately 90 db. to 80 db.

Sound-absorbing materials of high efficiency, properly installed, are very frequently capable of quieting noisy rooms and offices by an easily calculable amount, usually as much as 10 db.

How Noise is Measured

Energy units	*Decibels*	
10,000,000,000,000	130	Threshold of painful sound
1,000,000,000,000	120	Artillery gunfire
100,000,000,000	110	In airplane cabin
10,000,000,000	100	In subway car
1,000,000,000	90	Average auto horn
100,000,000	80	Tabulating machine room
10,000,000	70	Average stenographic room
1,000,000	60	Average general office
100,000	50	Average quiet office
10,000	40	Average residence
1,000	30	Quiet farmhouse
100	20	Underground vault
10	10	One's own heartbeat
1	0	Absolute stillness

Schopenhauer, the famous German Philosopher, once observed "Noise is the true murderer of thought." Herbert Spencer, the great thinker, often said that "You might gauge a man's intellectual capacity by the degree of his intolerance of unnecessary noise." Made many years ago, these statements find daily confirmation in modern life. Unfortunate indeed would be the situation of those required to perform mentally with speed and accuracy if there was no possible relief from the modern bedlam in which they are so frequently compelled to work. Today, in at least a partial counter-attack on noise, sound-absorbing materials are available that are capable of blotting out as much as 85% of the sound striking them. The materials are rated according to their effectiveness in this performance.

ECHOES

What do these sound or noise controlling materials do? Figure 2 is a picture of sound waves in an auditorium, reflected from the walls and ceiling surfaces, so that they focussed in the center rear, at which point there was an echo. Comparatively quiet spots, with few sound waves exist on either side of the echo point.

In dealing with an auditorium the acoustical engineer's job is, not necessarily to reduce sound, but to avoid echoes and silent spots and distribute sound evenly throughout the theatre. The photo on the right Figure 3 shows the sound condition after corrective measures were applied.

Sound control materials particularly those for reducing noise, absorb the sound waves so that they do not continue to rebound from wall to wall and floor and ceiling in a chaos of echoes and reverberations.

REVERBERATIONS

Reverberation is really a multitude of echoes so closely spaced as to defy segregation, and whose net effect is to blur speech and music into a chaos of noise. The effects of reverberation can be experienced out-of-doors, as when a rifle is fired in a mountain ravine. The sound reverberates noticeably for a few seconds, due to reflections to-and-fro from the walls of the ravine. Finally, it either escapes from the ravine or is absorbed by the bushes, trees, etc., of the surroundings. This effect of reverberation is present in the canyon-like streets of our large cities and contributes to the high noise levels existing there. In completely enclosed spaces, such as rooms, there is usually no exit the sound can take, so it continues to rebound from wall to wall to ceiling.

A noisy room in the quiet country may be made quieter by opening the window, so that the pressure of sound waves passes out, instead of being bottled up and bouncing around inside.

But in cities noise cannot be reduced in this manner, for though noise would pass out from the room, perhaps as much other noise would enter from the street.

But the ceiling or walls of city

FIG. 2. PICTURE OF AN ECHO
Sound waves reflected from the walls of an auditorium come to a focus at rear center causing an echo, with silent spots on each side.

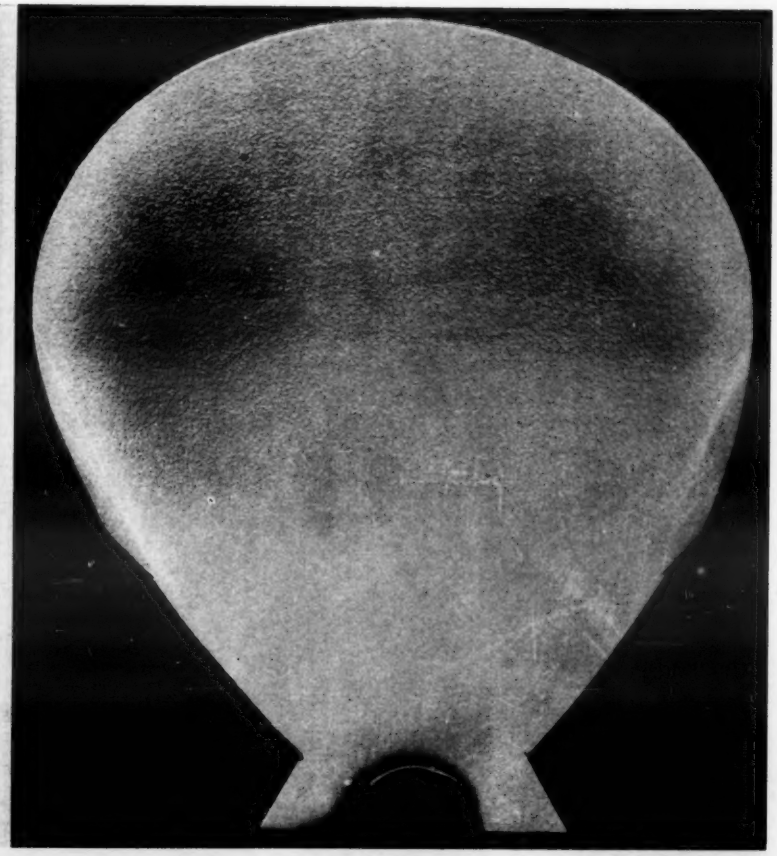


FIG. 3. SOUND CONTROLLED
Sound evenly distributed after studies and application of corrective measures

rooms may be covered, wholly or partially, with tiles with many small perforations in them. The sound escapes through these holes and goes into specially prepared absorbent material where it quickly dies.

It is possible and economical today to decoratively apply highly efficient sound-absorbing materials to the wall and ceiling surface of a noisy room with such effect that noise reduction of 5 to 15 db., depending on conditions, can be attained. Such materials convert almost as much sound energy into heat as an open window of equivalent area would permit to escape. Properly selected, such sound-absorbent materials are highly light-reflecting, fireproof, salvageable in tenant change and easily maintained, both aesthetically and hygienically.

When it is required to isolate a noisy space from a quiet one (e.g. a noisy general office from a quiet private office) highly efficient sound isolation constructions are already available, and proven by use. When vibrating machinery offends, vibration isolation will be found to be economical, practical and highly successful in result.

QUIET SAVES ENERGY

The harm which noise does to the human mechanism is by no means a matter of guesswork. The Department of Psychology at a large Eastern University showed in a convincing experiment that typists used 19% more energy working under noisy conditions and lost more than 40% in speed. And here is something interesting from the common view point of all businesses;—efficiency and economy:—An installation of quieting treatment in a telephone room of the Western Union Company reduced the number of errors made in handling messages 42%;—a net saving of 3% in the cost of each message resulted. In another installation in the book-keeping department of a large department store, a reduction in errors of 24½% was effected.

In the Research Laboratory of our Company at Manville, N. J. have been discovered principles of new and revealing importance regarding sound. We know its cause and effects; its results when suppressed and when out of control. Great resources and engineering ability are now at hand to provide quiet for all who realize the need for it, and will demand it. When the benefits of sound—*controlled*—are realized, then, noise, the greatest scourge of modern times, will be doomed.

Practically All Countries with Social Insurance Plans Have Permanently Adopted This System, After Other Systems Have Been Unsuccessfully Tried.

The Insurance Stamp Pass Book System

By W. F. Bernart, Jr.
Tax Research Division
Pitney-Bowes Postage Meter Co., Stamford, Conn.

Social insurance must be popularized as insurance, and not as a paternalistic Government "hand-out," and it must have efficient administration.

A simple insurance card or passbook, issued to each employee as his individual record, and on which stamps in the necessary amounts are periodically affixed or impressed, adequately meets these two essentials—popularizing the plan as individual insurance and providing efficient administration.

INSURANCE A REALITY

Stamp pass books, issued to and possessed by each employee insured, at once make the insurance feature a reality, and render it possible to keep track of the durations and wage rates of individual employment without elaborate record keeping, investigation, cross-checking, etc. The system of affixing or impressing stamps is by far the least costly and the most flexible to administer from the standpoint of all three parties concerned—the Government, the Employer, and the Employee.

Any alternate method must take the form of reports or returns similar to those used for income taxes, certain sales taxes, etc. While systems of this kind may be adequate for some purposes, they will be found to be inadequate for unemployment insurance, if the above requirements are borne in mind.

Practically all countries which have adopted social insurance plans—including most of the advanced countries of Europe—have permanently adopted the stamp pass book system.

This is the result of experience over a great many years, during which many alternate plans have been unsuccessfully tried.

The recently enacted Canadian Employment and Social Insurance Law in its administrative regulations (Article 18), specifically calls for "the payment of contributions by means of revenue stamps . . . affixed to or impressed upon books or cards . . ."

The only legitimate criticism of the stamp system may be said to be the difficulties of handling, affixing, and cancelling adhesive stamps, particularly in the case of large employers.

To meet this condition, modern mechanical invention and development makes available a "Revenue Meter," which may be used to record and impress the stamps directly on the books or cards with great convenience and simplicity to all concerned. Such devices have been successfully used in postal services throughout the world for the past fifteen years, and have collected billions of dollars of postal revenues.

STAMP METHOD DESCRIBED

Following is a description of the operation of a State Unemployment Insurance Pass Book system coincident with the use of adhesive stamps for small employers and impressed Meter Stamps for larger employers. The method outlined provides for the handling of all types of contributions and furnishes the basis for the eventual paying of benefits with the least administrative detail.

The Stamp Pass Book System operates fundamentally as follows, with variations and ramifications to suit particular cases:

The State through its employment offices or other agencies issues to all employees whose employers are subject to the tax, cards or pass books (see Exhibits "A" and "B") for a period (i.e., year, half-year, etc.).

Upon permanent employment (or if employed), the employee delivers this card or book into the custody of his employer. The employer is responsible for it during the time he employs the worker.

The employer who takes custody of the Pass Book merely:

1. Purchases the required stamps or insurance meter "settings" from a State Agency.
2. Affixes or impresses in the proper place in the Pass Book the insurance stamp covering contributions on behalf of that worker as due under the law.
3. Produces the Pass Book, fully paid-up (stamped) for State inspection when required.
4. Produces the Pass Book, fully paid-up, for inspection by any employee at such reasonable times as requested by him.
5. Surrenders to the employee his Pass Book, fully stamped for the period of employment at the termination thereof.

If lithographed adhesive stamps are used, the employer after affixing, cancels each stamp by pen and ink, or by suitable rubber or metal handstamp. If Meter Stamps are im-

printed this is unnecessary as, being impressed, they cannot be removed or re-used.

At regular periods (viz. annually or semi-annually) the State Agency calls in the old Pass Books, and checks and files them for future reference purposes. New ones are issued for the succeeding period.

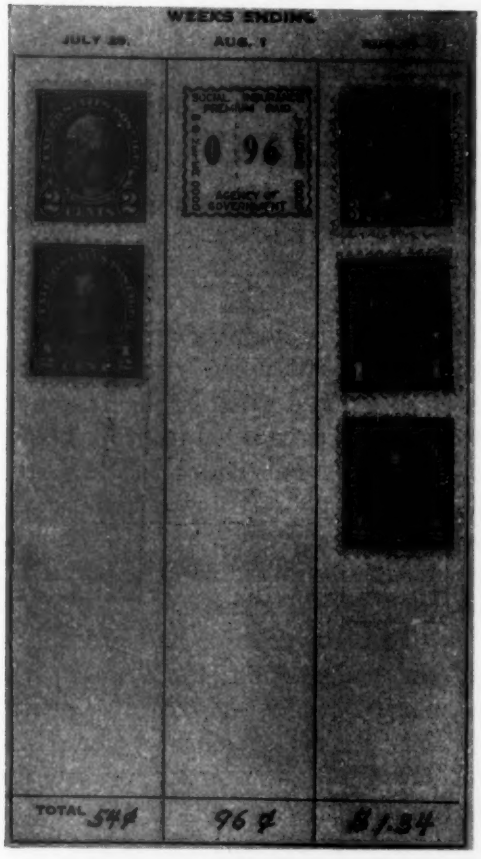
Under a merit rating or other individualized account plan the State would maintain a single master control record for each employer, but until a worker was actually paid benefits there would be no necessity of transcribing the details to an individual card.

STATE ADMINISTRATION

1. The Stamp Pass Book system furnishes the State a means of collecting 100% of the taxes and contributions. Under any system of reports or filed returns, such as the income tax, there are innumerable difficulties involving evasion and non-payment, and it is only by constant investigation and threats that payments are secured. The use of stamps as evidence of the payment of unemployment insurance contributions by either employer or employee, or both, requires each one to check the other. This *automatic* policing cuts administrative costs materially. It is not possible for dishonest employers to hold back deductions from their employees' wages for their own use.

2. Overhead expense in State Offices is reduced to a minimum. There is no necessity to transcribe and check from employers' returns millions of small sums for posting to employees' cards, because each employee's record becomes immediately available *when it is necessary to have it—at the time benefits are claimed.*

Under a law so drafted as to reduce administrative detail to a minimum,



Sample Page from Pass Book Showing Use of Adhesive Stamps and Meter Impressions

the amount of benefits to be paid will be based on wages received and weeks worked. All that is then necessary at the time benefits are claimed is the record of the contributions as indicated by the stamps in the Pass Book. Consideration

should be given to this detail at the time legislation is being prepared.

This is in contrast to the useless expense involved in the State's maintaining current records for those hundreds of thousands of workers who will never become unemployed, and thus never request benefit payments.

IDENTIFYING WORKERS

3. The use of Pass Books furnishes a means of identifying workers and immediately knowing the names of their past employers—as evidenced by the employers' cancellation marks.

Under any return or report system, European experience has found that endless confusion, mistakes of identity and losses in continuity of records occur. Not only does it cause tremendous expense to the State, but it weakens the worker's feeling of security and confidence in the insurance itself.

4. The convenience and protection of the Pass Book in meeting the problem of accurate record-keeping during shifts of employment and residence are among the most important advantages.

No other system can meet such conditions adequately because the mere change in employment with the attendant shifting of the book to the new employer allows no possibility of error. Thousands of workers who may never request benefits will automatically transfer their own records without the necessity of written, or printed changes by the State.

5. In the event of disputes or misunderstandings, the State can arrive at an equitable adjustment with more speed and accuracy, and less administrative cost by means of the Stamp Pass Book than by any system of filed reports and return.

6. Many unemployment insurances plans require employers of small numbers of employees to make contributions. The Stamp Pass Book solves this administrative problem. The wage records of the little four- or five-man commercial establishment such as the bootblack, the candy shop the local carpenters, plumber, etc., will not lend themselves to insurance payments collected by a deferred return system; but stamps may be readily purchased, and affixed in a Pass Book by anyone.

FROM THE EMPLOYER'S VIEWPOINT

1. The Stamp Pass Book system is also the simplest, safest, and most efficient method of payment for the employer.

He does not constantly have to file reports and throw open his payroll records and books to State inspection, secure and file receipts, etc. Insurance stamps of the correct denominations for the various classes of employment are all he requires.

For the smaller employer it requires little time, labor and attendant bookkeeping, to affix and cancel stamps in the Pass Books, particularly if designed for convenient handling.

If the employer's payroll is a large one, the installation of an authorized tax meter, as explained below, can

complete the job in a comparatively short time.

2. The employer can furnish almost instant proof to his workers that he is regularly discharging his insurance obligations week-by-week.

With the return method he would be constantly put to considerable annoyance, delay and confusion in order to produce ledgers, receipts, etc., to satisfy his workers that their insurance had been paid in full.

3. The employer is relieved of much red tape in his accounting and payroll records every time a worker enters or leaves his employ. He has only to accept or surrender the Pass Book.

Upon receiving the Pass Book of a new employee he knows the exact spelling of the employee's name and, if he has worked for other employers during the period of the book, the names of those other employers. Any personnel manager appreciates the difficulties coincident to obtaining accurate past records.

THE WORKER'S RECORD

1. The worker knows that any deductions from his wages have actually been paid into the State fund.

2. Each employee has a means of identifying himself and his record.

3. As the stamps indicate a proportion of wages, a worker has actual proof of what he received. It is *his* record, and not what someone else may claim was paid to him. As most workers receive either cash or checks which are cashed and not deposited in bank accounts, they would otherwise have no means of proving the amounts of their past wages. Without their own records they would be subject to the false statements of any dishonest employer who had not been paying his tax in full.

4. In the event of a shift of employment or residence, insurance stamps, properly affixed to, or impressed upon, the employee's Pass Book, are as valid in one part of the State as another, and for one trade as for another, without the delay of application record, investigation, etc.

5. The Insurance Stamp Pass Book gives the employee constant, tangible, easily-understood evidence of his own social security. The deferred method of reports and returns is bound to leave the mass of workers uncertain and vague.

Any return or payroll tax system could have no reality for them as insurance. The benefits would rapidly degenerate into a demoralizing Government "hand-out," which unfortunately characterizes so much of our direct relief.

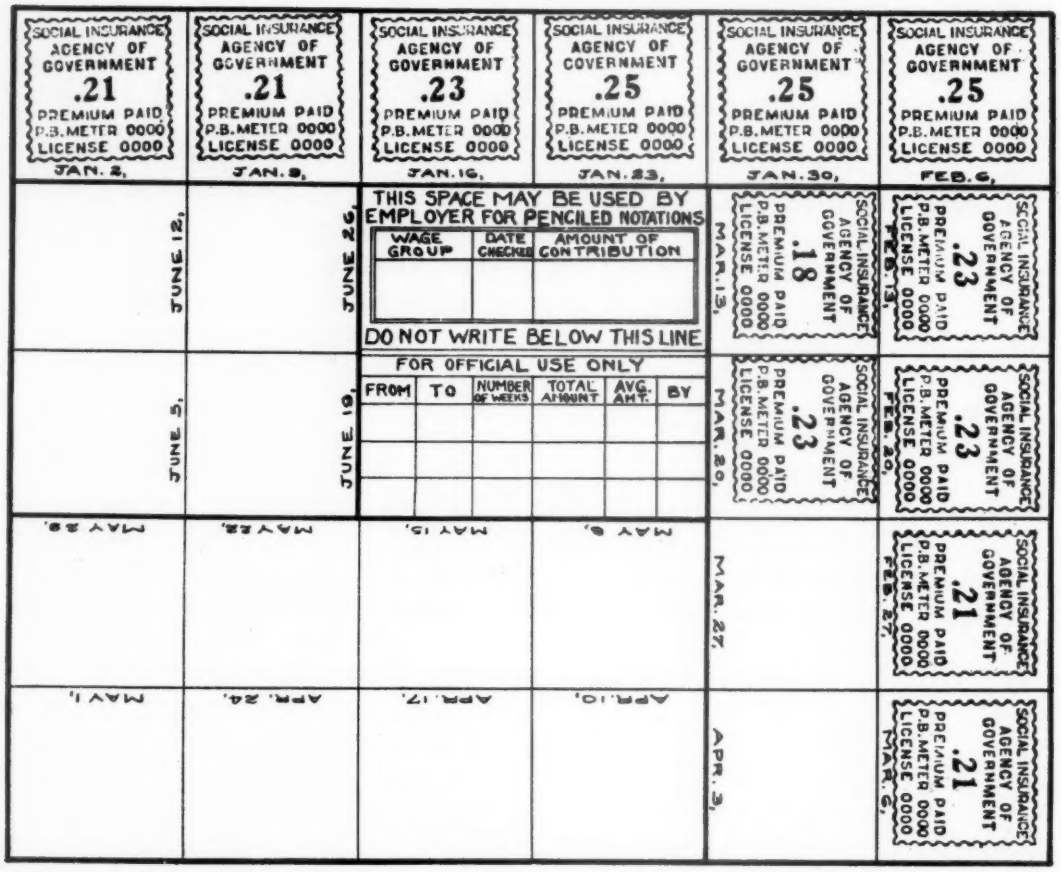
Insurance stamps, on the other hand, regularly affixed to each employee's individual Pass Book, whether or not there is a deduction from his pay, are something earned by employment. Future benefits will bear no taint of being public charity. He will have earned them!

Any social insurance plan depends for its success upon the *confidence* which the policyholders (workers) place in its administration. The Insurance Stamp Pass Book is an ideal

instrument to further and maintain this much needed confidence.

METER IMPRESSED STAMP SYSTEM

There can be only one legitimate objection to the use of the Stamp Pass Book system, and that would be felt principally by employers of large numbers of workers, who must stock large quantities of adhesive stamps in varying denominations, affix them weekly to pass books, cancel them, and see to it that there is always on hand a proportionate stock of the denominations to be required. For such large scale operations, the use of adhesive stamps is somewhat slow and cumbersome. It is by way of answering this objection that we arrive at the fundamental advantage of the use of METER IMPRESSED STAMPS.


SOCIAL INSURANCE AGENCY OF GOVERNMENT .21 PREMIUM PAID P.B.METER 0000 LICENSE 0000
JAN. 2,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .21 PREMIUM PAID P.B.METER 0000 LICENSE 0000
JAN. 9,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .23 PREMIUM PAID P.B.METER 0000 LICENSE 0000
JAN. 16,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .25 PREMIUM PAID P.B.METER 0000 LICENSE 0000
JAN. 23,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .25 PREMIUM PAID P.B.METER 0000 LICENSE 0000
JAN. 30,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .25 PREMIUM PAID P.B.METER 0000 LICENSE 0000
FEB. 6,
JUNE 12,
JUNE 26,
THIS SPACE MAY BE USED BY EMPLOYER FOR PENCILED NOTATIONS
WAGE GROUP
DATE CHECKED
AMOUNT OF CONTRIBUTION
DO NOT WRITE BELOW THIS LINE
SOCIAL INSURANCE AGENCY OF GOVERNMENT .18 PREMIUM PAID P.B.METER 0000 LICENSE 0000
MAR. 13,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .23 PREMIUM PAID P.B.METER 0000 LICENSE 0000
FEB. 13,
JUNE 5,
JUNE 19,
FOR OFFICIAL USE ONLY
FROM
TO
NUMBER OF WEEKS
TOTAL AMOUNT
AVG. AMT.
BY
SOCIAL INSURANCE AGENCY OF GOVERNMENT .23 PREMIUM PAID P.B.METER 0000 LICENSE 0000
MAR. 20,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .23 PREMIUM PAID P.B.METER 0000 LICENSE 0000
FEB. 20,
MAY 29,
MAY 22,
MAY 15,
MAY 8,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .21 PREMIUM PAID P.B.METER 0000 LICENSE 0000
MAR. 27,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .21 PREMIUM PAID P.B.METER 0000 LICENSE 0000
FEB. 27,
MAY 1,
APR. 24,
APR. 17,
APR. 10,
APR. 3,
SOCIAL INSURANCE AGENCY OF GOVERNMENT .21 PREMIUM PAID P.B.METER 0000 LICENSE 0000
MAR. 6,

SAMPLE CARD FOR SIX MONTHS EMPLOYMENT WITH METERED TAX STAMPS IMPRESSED

Under the meter system, the payer, instead of affixing a lithographed adhesive stamp, impresses upon the matter a Meter Stamp by means of a special printing and recording device authorized by the State for the pur-

pose. Prepayment is effected by having the device, always under State lock and seal, brought by the user to the proper agency and set for the amount required. Cash payment is made by the user at the time of setting. The meter, so "charged" for a lump sum of postage or tax prepayment, is capable of impressing stamps of various values until this sum has been exhausted, when it automatically locks and prevents further use until reset. The meter does not have to be exhausted, however, before being reset. Amounts can be added to the balance remaining at any time.

Meter Stamp devices for printing postal and tax revenues are, of course, manufactured in various types and sizes, suitable to different government and commercial requirements. Some are hand-operated, others electrically operated and can handle matter automatically at high rates of speed.

METER MACHINES

The meters are usually the detachable portion of a larger feeding and driving mechanism. They are so designed that stamps of varying values (from 1¢ up to $100.00) may be printed in a single operation by the user, the control being in dollars and cents. Each meter has two registers or counters, which change simultaneously by the amount which has been printed. The first, the ascending register, keeps a running perpetual total of the amount used. It is never reset, and is inaccessible, even to a State Inspector. The second, the descending register, shows the balance on hand, likewise in dollars and cents. This is the register, under State lock and seal, which is set at the time of new revenue purchases. The accounting is therefore automatic, and, being designed so that one register checks against the other in mechanical operation, is also fool-proof and fraud-proof.

The Meter Stamp—the printed impression—should probably contain:

1. Name of the State and its insurance.
2. Amount of the tax. If it is a joint contribution, this would be the total contributed by employer and employee.
3. The meter number, and manufacturer's identification.
4. The user's identity by license number.

The printing die can thus contain practically any or all information required within the minimum limits of a $1\frac{1}{16}''$ square.

The Pass Books are fed into the machine, printed after a selection of values, ejected and stacked in an orderly pile, while the amounts, although varying, have been automatically recorded in the meter registers.

A Proposal to use Tests of Muscular Power in the Selection, Assignment, Pay and Retirement of Employees.

Strength Tests *and* Their Uses

By Frederick Rand Rogers
Boston University

One of the employment manager's functions should be to discover and employ those who are strongest, particularly for work which requires the use of the large muscles; and to assign those who are strongest—in-proportion-to-their-size to work which requires endurance, or many or often repeated muscular contractions.

Muscular strength upon which largely depends an individual's ability to produce, is a prime factor that has so far escaped sufficient consideration.

Moreover, muscular strength is needed by the so-called brain-worker; and perhaps an abundance of this physical power is more necessary for successful executive functions than for labor.

FATIGUE

The importance of strong skeletal, or voluntary, muscles is well demonstrated by imagining employees lacking this quality "at work." Imagine the industrial efficiency of a worker with just enough strength to reach the factory or store or office, and then, because of the fatigue of these efforts, to collapse and be sent home. His efficiency is just above nil. *So is his strength.* Such cases must occur sometimes throughout industry, from executive officers to floor cleaners. Still more common are workers with enough strength to "go through the motions," but insufficient endurance (surplus strength) for effective effort.

Taking another tack, what is it

that incapacitates for work the convalescent from disease? Not disease itself, for the virus has been overcome. Not lack of skill or knowledge or general intelligence or loyalty or will, for all these are present and may be unimpaired in the convalescent. The single factor which renders him unfit for duty is weakened muscles, which will not support his weight or endure more than a very few contractions before needing rest. Conversely, employees with an abundance of strength are able to work faster and longer hours and with greater precision than those with only average strength. The muscularly stronger employees fatigue less rapidly, their attention may therefore be directed more efficiently to the tasks in hand. Consequently they produce more goods or services.

It is likely also that muscular power—a certain modicum, not an unlimited amount—is greatly helpful to the brain-worker, whether salesman or manager or organizer. For "mental fatigue" is a misnomer. Nerve cells cannot be fatigued by any but the most extraordinary number and rapidity of impulses. "Mental fatigue" is really interference with the flow of neural activity by the fatigue products of muscular activity, a fact demonstrated repeatedly in psychological and physiological laboratories. "Raise muscular strength and endurance and you increase mental power and endurance" is the surprising but logical corollary.

Possibly hod-carriers need more muscular power than executives (though the latter usually have more). Typists need back and forearm strength rather than, or more than, shoulder girdle and leg strength. The most efficient button pushers and lever pullers are probably small persons with relatively high all-round strength or endurance.

These are details. What is most significant is that men and women, *certified as sound in health by medical examination techniques*, vary in muscular powers over a relatively wider range than they do in intelligence. Some men are actually four times as strong as others, even when subjects of identical age and weight are compared.

Now employment officers do use intelligence tests, at least in a narrow range of application. No one would knowingly engage a moron or imbecile for clerical services. On the other hand, the muscular strength of applicants for many kinds of labor, in which strength is likely to be as important as skill, continues to be more or less ignored.

Undoubtedly several questions arise in the reader's mind at this point. How may strength be measured definitely? i.e., in a highly valid, reliable and objective manner? Can such a measure be applied economically?

SEVEN TESTS

Employers will be interested to know that a battery of seven dynamic strength tests is now available, which may be quickly and easily adminis-

tered. Briefly, the tests include the measurement of:

(1) *Lung capacity*, using a wet spirometer into which the individual blows, forcefully expelling the air from his lungs. Lung capacity, in cubic inches, has been determined to be of great significance in nearly all experimental tests of physical condition. (2) and (3) *Grip strength* of both hands, in pounds, using a hand dynamometer to measure the strength of both right and left forearm muscles. This measure alone, when interpreted in relation to the sex, weight and age of the individual, is an important indication of physical condition. Grip testing has been practiced experimentally for nearly a century by physiologists and psychologists. (4) and (5) *Back and leg muscle strength* in pounds, testing the lifting power of back muscles followed by the leg muscles, using a back and leg dynamometer. (6) and (7) *Strength of upper arm and shoulder girdle muscles*, in point, using "pull-ups" to bar on rings to measure arm flexion and downward scapular rotation, and "push-ups" from parallel bars or stall-bar bench to measure arm extension and downward scapular rotation.

The tests are easily scored, requiring simple arithmetic computations. The scores of each individual on the seven items of the test are totaled, giving a crude or achieved *Strength Index*. Averages or norms have been scientifically determined for all combinations of sex, weight and age of workers. By using the norm charts and dividing the achieved Strength Index by the norm for the sex, age and weight of the individual, a quotient called the *Physical Fitness Index* (P.F.I.) is calculated. The P.F.I.'s of individuals may range from as low as 30 to 40 for those in poor physical condition to P.F.I.'s approaching 200 for those who are in extremely fine condition.

The tests mentioned above have been scientifically validated, and have had a twelve-year try-out period. In fact, the number of tests given must now exceed a million. The reliability co-efficient of the battery is between .97 and .99. The use of mechanical measuring instruments and standard testing technique, render the tests highly objective. A large number of schools and universities now use them, particularly in New York State.

ONE EMPLOYEE PER MINUTE

This battery of P.F.I. tests is one of the least time-consuming personnel efficiency tests. When administered by trained testers the entire battery may be taken by each individual in from ten to fifteen minutes. Workers may be passed through the testing room at the rate of about one employee per minute by using three or four testers and as many clerical assistants.

Other health examinations do not measure muscular power quantitively. Of course the medical examination is the first indispensable step in determining the propriety of employing and assigning an applicant,

for the presence of disease will endanger others and incapacitate the applicant himself, while defective vital organs will be incapable of creating the strength to perform. *By the same tokens*, strength testing should also be an indispensable step in assigning applicants. For of what use are sound vital organs if the muscles are too weak to use and enjoy them?

MAINTAIN PERSONNEL EFFICIENCY

The selection and assignment of employees are only the first uses of strength tests. "Maintaining the physical powers of employees in service" suggests a far more productive program. For one's P.F.I. does not remain constant from week to week and year to year, like an I.Q., but fluctuates over a very wide range. The average young man or woman has a P.F.I. of about 90. That is, his or her strength is about 10 per cent below the norm for persons of like sex, weight and age. Many however have strength superior to normal. Some are from 20 to 50 per cent above their norms—their P.F.I.'s are from 120 to 150. As convalescence from serious illness begins the P.F.I. is not above 10, or 90 per cent below average for one's norm. *It may easily be raised, in the average employee under forty years of age, to 120.* Exceptional young men and women may attain P.F.I.'s above 200. One has been recorded at 232: a 17-year old boy weighing 175 pounds, whose Strength Index is 5800.

The first step before increasing an employee's physical efficiency is to determine his present status. If his P.F.I. is below 80 (and there is probably a percentage of 10–15 in any factory, shop or office below this level) then he needs close attention by the medical department. If he is above 130–140 it is likely that he is over-straining himself and needs relaxation. No matter where he stands on the health scale, if he is changing his position from weak to stronger or vice versa, he should know it and modify his daily habits to meet any anticipated dangers. Tests should be given and health programs modified at least annually for all employees and monthly for those in poor health.

Experiments already made indicate that such a program as is hinted at above would raise the physical fitness of any organization's personnel from ten to twenty per cent, at a cost of less than a dollar a month per employee.

ASSIGNMENT OF JOBS

A third problem is that of allocating employees to jobs in accordance with their powers, or developing in employees strength where it is most needed. Of the two alternatives, personnel directors may possibly be safest in the former. For the human body, while highly adaptive to needs, is very various in proportionate development and capacity for improvement. However this may be, the major problem of adapting work to powers, or powers to work, is a

very real one which employers would do well to consider seriously.

RETIREMENT AND STRENGTH

Another difficult problem which may need to wait another decade for solution, but which is real is basing retirement on a physical, as well as a calender, criterion.

Who would deny, for example, that some men and women are more efficient at seventy than others are at fifty? The greatest value of a physical criterion for retirement may not be to extend the employment of some to seventy-five, but to discover and retire at fifty-five or sixty those whose efficiency has dropped to the point where they cost more than they produce.

EMPLOYEE APPROVAL

There is a distinct possibility of employee disapproval of the testing program. Fearful of being discarded for stronger, more efficient workers; certain that their weaknesses, so carefully hidden from foremen and physicians, will be discovered; apprehensive lest ways of living will be changed—many employees will resent strength testing as vigorously as they have other moves for improving efficiency.

And they will be at least half right. For strength tests cannot be cheated. They measure vital qualities. They are easily ridiculed but at the same time are profoundly challenging. Let the reader unsure of his own strength examine his emotions as he assays this analysis!

No, many employees who fear and oppose strength testing will have a very real basis for their fears. But we repeat, they will be only half right. Their error will be failure to realize that an objective physical fitness testing program, measuring muscular power, utilized to adjust work to ability and as a basis for health-improvement will greatly increase their capacity to enjoy life itself. For happiness depends infinitely more on physical fitness than on money; and the store or shop or office or factory or transportation service which undertakes a strength-testing *and* health-improvement program is bound eventually to be a happier, as well as a more efficient, organization.

Mr. Ward Writes with Enthusiasm about the Public Employment Center in Cincinnati, Describing the Newest, Latest and Best Methods and Machines Installed There.

Job Placement *in* Cincinnati

By Roswell Ward
Cincinnati, Ohio

CINCINNATI is the latest city to organize a public employment center, intended not only to centralize placement resources, but also to develop more advanced public employment methods.

Coördination of an employment office with all of the complex units of our public and private relief and social agencies, and related activities, is not an easy task. Effective cooperation between all of these units in meeting their dual objective of emergency relief and long term social security is probably one of our major administrative problems at present. It is therefore very much to the point to set up an organization in which the element of community coöperation is a basic and fully recognized major objective, rather than an incident to the scheme of operation.

In Cincinnati for example, the Employment Center is in contact with a wide range of industrial, commercial, and retail employers, all of whom have special and urgent needs; it is daily registering, classifying, reinterviewing and placing a substantial number of unemployed workers. In many cases, through its Consultation Services, it is dealing directly with a variety of vocational and occupational adjustment problems and is making referrals to the schools, the adult education classes, and recreation, health, social and character-building agencies.

There are, in addition to those basic elements already mentioned, several unusual features in the organization and the procedure in use. While applied in this case to the work of a public employment office, there

are points of considerable interest to anyone concerned in activities which involve large scale registration and record keeping.

To an observer familiar with traditional public employment office procedure the most unusual development is the functionalization of the organization. In place of the usual combination of registration, classification and placement and employer contact duties, carried out by the same individual through a rotation of functions; the tendency in Cincinnati has been towards the employment and training of specialists in each of these functions. This separation of the function of registration and placement, for example, makes the placement officers entirely dependent on the records selected for them, (through a procedure which will be outlined) rather than permitting memory or notes on recent or outstanding applicants to enter into the selections for referral. This is designed to prevent any subconscious or conscious favoritism in selection of applicants for referral.

Instead of the familiar expedient of a combined registration and placement officer constantly working with the file of applicants registered in a particular division, all records are kept in a central file. The records themselves are an innovation, as they combine the best features of business, social agency, and personnel office practice by using a standard $8\frac{1}{2}$ x 11 folder, with generous space for data on the outside and inside of the folder, and the additional advantage of being able to use the folder for letters of reference, tests, reports, interviewers notes, etc. This type of record, while it requires somewhat more space, has an important future utility advantage, as Cincinnati's employment records may be immediately used, when and if necessary in administering unemployment insurance.

The procedures involved in the very important work of classification are described by Dr. Thompson:

"Facilities for testing the capacities and abilities of each applicant are available, in addition to the customary technique of interviewing. Here the usual census facts are obtained, the employment history, a systematic appraisal of personal characteristics, the information on the previous experience as reported by former employers, plus such testing as may assist in giving the Center a fairly complete picture of the applicant.

"As the result of this method each applicant is classified for as many or as few occupations as are reasonable within the limitations of his *ability* and experience. This extension of *range* of occupational outlets is based on the principle that the functional differences between many different jobs are of little significance, and that the basic abilities required in many jobs are similar. For example, the degree of mental alertness required for stenographers, bookkeepers, stock clerks may be about the same. If the job requires a special skill that can be learned only after an extensive period of special training, then free

transfer from one job to another is unwise. If, on the other hand, the great majority of jobs require skills that are quickly learned, then the basic requirement is adaptability and trainability, and transfer from one job to another is not only possible but very desirable.

"If the principle is considered in relation to the economic picture, the importance is still more striking. A comparison of the production level and the number of persons employed in various industries shows that the number of men required to maintain any given production level is less than the number of men required in 1928–29. This means that a large number of workers who during the past few years have been dislocated, will continue to be at a disadvantage so far as their ability to return into their former occupation is concerned. Such people fall roughly into four groups, viz.: (1) those whose former trades are now obsolete, (2) those who have lost their former skills, due to either unemployment or to a forced change of occupation, (3) those who have deteriorated and become maladjusted as a result of the recent economic stress, (4) those who have left formal education but as yet have been unable to attach themselves to a formal payroll. If any large proportion of these people are to be placed in employment, they must be studied, properly diagnosed, and often retrained, and redirected. It is imperative then that each applicant be studied during the course of his registration, with these ends in view. A proper part of the employment procedure then is *guidance* as well as registration.

With this introduction to the functional organization; the use of central files; and the method of classification; we can easily visualize the course of a new applicant through the mechanics of registration and classification. We must remember that in this whole process he has not once made contact with the placement officer who will eventually refer him to a prospective employer. The link between the registration and placement functions is one of the most unique and most effective of the new methods used in Cincinnati. (The only other place where it is used is in the Central Casting Office in Hollywood!)

When a new applicant's record reaches the central files, after registration and classification, it may have from one to ten occupational classifications, together with very complete "census data," (the term used to cover all information on the individual, his family, etc.). This information is "punched" on the familiar type of Hollerith card, which is now used in most large scale statistical operations. A separate card is automatically made for each occupational classification of the individual, and they are filed by occupations. John Jones' record, for example, has now become a series of non-committal looking cards, each with a series of punched holes by which John Jones is identified by means of a serial number. The orig-

inal folder for John Jones is filed numerically, according to his serial number. A cross index card, filed alphabetically, bears John Jones' name, address and date of birth and is the connecting link between the foler and the punched cards.

Now let us shift the scene to the placement officer, who is receiving a job order over the telephone. He records a call for a man who can operate a Warner and Swasey turret lathe, who has his own tools, who is between the ages of 25 and 55 years of age, and who lives in Western Hills. A reference to the map gives the "Census Tract" number for that area. That goes on the order also. Then it goes to the central file. In the usual placement office, the cross-indexing system prescribed by the United States Employment Service would serve to locate the available turret lathe operators, but a hand sorting process would be necessary to select for applicant's possession of his own tools, for age, and for residence. Since many job orders have much more detailed specifications than this, the problem of selection becomes a compromise between the cross indexes that are available and registration interviewer's memory.

In Cincinnati, however, a soulless, but relentlessly accurate and impartial machine makes the first group selection. The order form goes to the operator; from the file come all the punched cards for the classification called for, the machine swallows up the larger pile of cards and after a few passes spews forth a relatively smaller pile of cards, representing the men who meet the special requirements we have noted. Then the little pile of punched cards disappears into another machine and the serial numbers of those whose cards were selected are printed on a paper tape. Using this list the original folders are taken from the central file and are sent to the placement officer. Out of 500 turret lathe operators, the machine has, in five minutes, selected the two dozen men who meet the employer's requirements. Every man has been considered, every man has had his chance, and the initial selection has been made strictly on a basis of the employer's specifications. They call this group of selected applicants a "panel," from which the placement officer can make his final selection, as the machine cannot presume to replace the final judgment of a trained placement interviewer.

Telephone calls and motorcycle messengers often summon the persons whose cards were finally selected. John Jones sits rather nervously in the placement division's waiting room (soon to be perhaps the only employment service waiting room to be equipped with books and magazines as a full-fledged branch of the public library), and within a few minutes is on the way to interview the employer. This sort of thing eventually gets done in any public employment office, but Cincinnati's claim is that its employment center does it more accurately; with greater speed; with a wider opportunity for search-

ing out every occupational possibility an applicant may have, and with a greater degree of certainty in being sure that John Jones actually has the experience and aptitudes for the job. The problem of having ones *entire abilities* considered, regardless of their diversities, is solved by this procedure.

John Jones may have a young son who wants a job and in the Cincinnati Employment Center the Junior Division was established because of the very evident need for special attention to the problems of job finding for young people under 21 years of age. In some states, notably New York State, junior placement has been handled by an entirely separate Junior Placement Bureau, functioning actually in close coöperation with the State Employment Service. In other sections there has been a tendency to regard special service for juniors as a "coddling" process which should be avoided, or which cannot be considered because of budgetary limitations.

In Cincinnati both extremes have been avoided, by delegating the responsibility for initial reception, registration and occupational classification of young people to the Junior Division; leaving the work of selection for referral to jobs, interviews before job referral, etc. to the divisions of the Center which also handle adult placement. However, a very close coöperation exists between the Junior Division and the Placement Divisions, including interchange of information on registrants and job opportunities, rotation of Junior Division personnel in placement and employer contact activities and conference discussion of junior problems.

Provisions are made not only for junior consultation work, but there is also an Adult Consultation Service, which deals with all matters concerning occupational adjustment, adult re-training and the handling of the innumerable "human" emergencies which occur in the daily operation of the center, (which usually require immediate referral to some other organization). This service is under the direction of Dr. Frances Hollingshead, formerly Director of the Buffalo Foundation.

The research program naturally divides into two main objectives. First is the "study of opportunities for absorption of workers in the community" which in less formal terms means a complete survey of the extent and kind of employment offered in the Cincinnati area; trends in employment and employers' requirements; seasonal variations; "vanishing occupations," and new employment opportunities. The second part of the research program is concerned with further study of the various techniques used by employment offices in registration, classification, selection and referral of applicants.

The results of these two inquiries will together form the basis for meeting the present and future responsibilities of the employment center and will assist materially in its contribution to planning, in coöperation with other community activities,

and effectively putting these plans into operation.

The three major executives who have planned the work of the Cincinnati Center and are now putting their plans into effect are: Colonel Henry M. Waite, Director of the Regional Department of Economic Security, of which the Center is the unit under discussion. Colonel Waite was City Manager of Dayton, Ohio, then City Engineer of Cincinnati. During the World War he held high command in the Railroad Administration of the American Expeditionary Force. In more recent years he was Chief Engineer of the Cincinnati Union Terminal. For a time he was stationed in Washington as Assistant Public Works Administrator, a post which he resigned to accept his present reponsibilities.

Stanley B. Mathewson is in charge of the operation of the Employment Center. Prior to the war he had a variety of engineering and personnel jobs and in war service was, at the time of the Armistice, in charge of trade tests in all U. S. Army Camps. He was a member of The Scott Company Engineers and Counselers in Industrial Personnel, and for several years was Personnel Director of Antioch College at the time that institution developed its coöperative program. His work at Antioch included his book "Restriction of Output Among Unorganized Workers," and service with the National Coal Commission. He is co-author with Dr. Walter Dill Scott and Robert C. Clothier of "Personnel Management." He came to the Cincinnati Employment Center from work as Director of the National Reemployment Service in Ohio, and as Regional Director for the National Labor Relations Board.

Dr. Lorin A. Thompson, Jr., Director of Research, was educated at the University of Omaha and at Ohio State and has held positions at Purdue, University of Pittsburgh, Ohio State, and was for several years Professor of Psychology at Ohio Wesleyan University, from which position he was "drafted" to assist in the organization of the research program of the Cincinnati Center. The heads of all the major divisions won their respective positions through competitive City or State Civil Service Examinations.

News Notes

PHILADELPHIA MEETINGS

The Salary and Wage Administration Section of the Methods Group of the Philadelphia Personnel Association has been holding a series of meetings for the following purposes:

1. To provide a means whereby those engaged in salary and wage administration activities may discuss their problems and interchange ideas.

2. To provide a means whereby those not familiar with the principles and practices of effective salary administration plans may become acquainted with the advantages and procedures thereof.

The meetings were announced by Samuel L. H. Burk, chairman of the Methods Group sub-committee on Salary and Wage Administration.

Questions taken up included:

How can the necessary information concerning the job be best secured? Is the use of "questionnaires" advisable? Is such information adequate? Are personal interviews advisable? What is the value of statements concerning duties and necessary qualifications? (a) When made by employees? (b) When made by supervisors? To what extent is the job analyst justified in modifying such statements by applying his own judgment?

How can the information secured be best recorded? Should a printed form be used for recording the information secured from questionnaires and/or interviews? If so, what form should it take? Under what circumstances should some sort of preliminary specification be prepared, prior to the writing of the final job description? Is it advisable to use a final specification form which has been used in other companies? What are the advantages of the use of standardized terminology? What are the basic requirements of a good job specification form?

What are the relative advantages and disadvantages of grading and classifying jobs without any attempt at breaking the job down into its "elements"? How can the job be broken down into elements for more detailed comparison? Can the same break-down be used for different industries or different companies within an industry? If not, can we set up a general division of "efforts" or qualifications to be used as a guide for each individual study?

What has been the experience of the group in the use of point rating schemes? Do these point rating schemes eliminate the fallibility of human judgment or does judgment still have to be introduced in order to arrive at the best possible result? What are the dangers of too close adherence to point ratings? What are the dangers of relying entirely on the judgment basis?

Should department heads partici-

pate in the initial grading, or should they be asked to criticise the work of a rating group? What should be the personnel of the rating group? What is the optimum size of the group?

To what extent should present rates determine the conversion of the new grading to new rates? What weight should "going" or market rates bear on the conversion? Under present conditions, how accurately can "going" rates be determined? For companies having plants in various localities, how can geographical rate differentials be justified?

Presuming that no *general* rate change is to be made (e.g. a 10% increase in all rates, or a 5% decrease in all rates) how can the individual rates be adjusted with minimum friction? What is the responsibility of management for past errors in rate? What, if any, period of adjustment should be allowed, especially for men whose rates are to be reduced? If a *general* rate change is contemplated, should the new schedule be installed before, simultaneously with, or following the general change?

Can "ranges" of rate be assigned for all classes of employees, and if not, for what classes can they be provided? When ranges of rate within grades are employed, who should control increases within the ranges? How often should employees be considered for increases within the range? What is the best time for these considerations, i.e.: one set time for all employees; on the individual anniversary dates; all employees in one organization unit at one time; or some other schedule? What factors should be considered before granting or refusing the increase? How should the amount of the increase be determined? When an employee is promoted from one grade to a higher one, when should he receive the higher rate? When an employee is demoted to a position in a lower grade: Should his new rate be set at the minimum or the maximum of the lower grade, or at some point in between? When should the decreased rate be made effective?

HUMAN ENGINEERING

The 4th Annual Report of the Human Engineering Laboratory of Stevens Institute of Technology, has just been issued by Mr. Johnson O'Connor. It describes the work of 1935 and plans for 1936.

Four reports were issued:

No. 1. Development of tests for graduate nurses. As a result of the findings the Presbyterian Hospital School of Nursing administers the English vocabulary test, to every applicant for nursing training; and then sends those who obtain satisfactory scores to the Human Engineering Laboratory for a complete aptitude test before enrolling them.

No. 2. Development of a new form of the English vocabulary test, containing words which have not previously been used therefore free from the effects of coaching which may influence scores on earlier forms, some of which have been in use more than fifteen years. Although this Report was not issued until October, 1935,

form EA of the vocabulary test, which it describes, is now being used by public and private schools and by business organizations in ten different states.

No. 3. Describes researches which showed that an individual whose behavior differs from his inherent personality, seems to encounter difficulties in social adjustment. This report describes an attempt to measure behavior, independent of personality, to gain a better understanding of these maladjustments.

No. 4. A Study of the Physics Technical Vocabulary Test. This report describes a second revision of the Physics vocabulary test. The test is not yet sufficiently accurate to be made available to schools.

Research projects to discover mental elements, which have been completed during 1935, but which have not yet been published in report form, have dealt with tests for word checking, number checking, creative imagination, inductive reasoning, art, free association, wiggly blocks, observation, clock reversal.

The report reveals that during the past year temporary laboratories have been set up in the following schools, colleges, and organizations: Asheville School, Bement School, Cranbrook School, Deerfield Academy, Eaglebrook School, George Innes High School, Great Neck High School, Miami University, Morristown School, New Trier High School, Northfield Seminary, North Shore Country Day School, Providence Country Day School, Ridgewood High School, Scotch Plains High School, T. Coleman Andrews & Company, University of Michigan, Willard School (students sent to Ridgewood High School).

The testing in the two permanent laboratories, at 381 Beacon Street, Boston, and at Stevens Institute of Technology, has continued to increase. For the past four years testing has doubled each year.

SEARS, ROEBUCK PERSONNEL EXPERIENCE

Some "danger points in adjustment to a new personnel job," are outlined by Paul A. Mertz, in discussing practice of Sears, Roebuck and Co., in the Retail Bureau Bulletin of the University of Pittsburgh.

"Early in the development of the larger units of retail stores in Sears Roebuck and Co.," Mr. Mertz reports, "it was recognized by many store managers and parent executives that specialized assistance to the store superintendent in his personnel responsibilities was essential. It was a few years later that the company believed that the position of personnel assistant should be officially created and managers encouraged to establish such positions.

"At that time only 14 of the 65 'A' department stores had such assistants. Within the year, the number increased. The expansion necessitated the selection locally of women from outside the company, because of the inability to develop sufficient numbers within the company so rapidly. A majority were professionally trained personnel women,

with a minority recruited from the stores themselves after training in another store under a competent personnel woman.

"Job analyses were prepared for managers and for the so-called personnel assistants themselves, to guide them in organizing the activity under the company policy. In passing, it may be stated that the turnover in these pioneer assignments has been surprisingly small and that the company is able to fill most of its personnel jobs today within the company. The personnel women in the company today, with few exceptions, have demonstrated their ability to perform a valuable personnel service, justifying company faith in them and their accomplishment."

Mr. Mertz then goes on to record how some of the new appointees, "for the most part trained and experienced in other connections, failed to measure up in some respects, to the new situation."

"Wherever the blame," he concludes, "the situations are indicative of danger points for the personnel worker to observe. Among the separate characterizations given by store managers were these:

" 'She was too academic. She thought of training as confined to organized class work, and could not get to the sales floor to help remedy the selling weaknesses that could have been corrected individually on the spot.'

" 'She could not delegate training responsibility. She recognized her own superior ability as a teacher and tried to do all the training herself. She failed to appreciate that her training job was largely to guide, train, and help division heads and others to do their own training job.'

" 'She never finds time to get out on the selling floor for corrective and individual work. She allows herself to be loaded up with office duties, particularly with employment work, and cannot seem to find time to train. She does not *plan* her time and activities.'

" 'She has allowed other executives to load her with their detail. She finds her time taken up with endless chasing of cash register errors, time-keeping detail, and follow-up of schedules. I am trying to remedy this condition.'

" 'Our employees do not like her. She lacks the knack of keeping their good-will in correcting individual effort. She talks down to them, instead of with them.'

" 'She lacks executive ability. As a time-keeper and office woman she is at her best. But she does not have the ability to influence the conduct of others.'

" 'She is a good talker and a good promiser. But nothing happens.'

" 'She is too maternal. She should be a welfare director only. Her interest in some employes, including executives and their problems, has been misinterpreted as personal. Petty jealousies and even a question of her discretion has been the result. Her work lacks balance.'

" 'She does not understand that her function in the last analysis is to help

the store get more sales through the medium of the right kind of personnel work. She wants to organize courses in all kinds of remotely related subjects, and spends most of her time cutting out paper dolls' (writing manuals).

" 'She has not made any effort to know the merchandise as a background for practical selling help.'

" 'She devotes endless hours to interviewing applicants, to the exclusion of her training functions, when no possibility of employment is imminent.'

" 'She isn't a soldier. She goes feminine on us, or at other times, becomes the prima donna when it is necessary to discuss with her how she can improve her work.'

" 'She plays favorites. Certain people in the store claim most of her attention. Others feel neglected.'

" 'Our personnel assistant is totally out of sympathy with the store policies and does not appreciate that she came out of a well-organized store with years of personnel management behind it into a position where the personnel job has to be pioneered.' "

"It is not to be inferred," says Mr. Mertz, "that all of the situations mentioned above were left uncorrected. Some of the best personnel women in the company were, at one time, the subjects of some of the above criticisms."